Date: Thursday, 4/12/2007 8:21:44 AM
User: Kim Johnston

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: BRACKET ASSEMBLY
Job Number	: 31654		
Estimate Number	: 10278		
P.O. Number	: N/A	Part Number	: D3121141
This Issue	: 4/12/2007 S.O. No. : N/A	Drawing Number	: D3121 REV D
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: N/A Type : MACHINED PARTS	Drawing Revision	: D
Previous Run	: 31069	Material	: N/A
Written By	:	Due Date	: 4/30/2007 Qty: 12 Um: Each
Checked & Approved By	: 07.04.12		
Comment	: Est Rev Pick A 04.02.18 New issue KJ/DS		

Additional Product

Job Number:

Seq. #:	Machine Or Operation:	Description :
1.0	M174B1000X02000	17-4 SS Bar

Comment: Qty.: 0.5775 f(s)/Unit Total : 6.9300 f(s)
Material: 17-4 SS Bar per AMS 5604/5643
(M17-4-B1.000x02.000)
Identify for D3121-111
Batch: M14773 07/04/24

2.0	BAND SAW	BAND SAW

Comment: BAND SAW
Cut blanks: (1.000" x 2.000") 6.600" long 07/04/24

3.0	HAAS1	HAAS CNC VERTICAL MACHINING #1

Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine D3121-111 as per Folio FA361 and Dwg D3121Identify as D3121-111

2-Deburr

3-Scribe batch number 07.04.27 (12)

4.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE

Comment: INSPECT PARTS AS THEY COME OFF MACHINE 07.04.27 (12)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes (No) **DQA:** KP **Date:** 07/05/03

QA: N/C Closed: _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			
07/04/25	3	wrong tool radius	07.04.26 DCV QSI 042	PART IS OK REF DS. EMAIL	07/04/25	07/04/30	07.04.26 DCV QSI 042	07/04/30

NOTE: Date & initial all entries

Date: Thursday, 4/12/2007 8:21:44 AM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services **Drawing Name:** BRACKET ASSEMBLY

Job Number: 31654 **Part Number:** D3121141

Job Number:

Seq. #:	Machine Or Operation:	Description :
5.0	QC8	SECOND CHECK

Comment: SECOND CHECK BG 07.04.30 12

6.0	D312121	Bolt

Comment: Qty.: 1.0000 Each(s)/Unit Total : 12.0000 Each(s)
Pick:
Qty Part Number Description Batch
1 D3121-21 Bolt B31758 07/04/30 12

7.0	D3121241	Bearing Assembly

Comment: Qty.: 1.0000 Each(s)/Unit Total : 12.0000 Each(s)
Pick:
Qty Part Number Description Batch
1 D3121-241 Bearing Ass B31700 07/04/30 12

8.0	SMALL FAB 1	SMALL & MEDIUM FAB RESOURCE 1

Comment: SMALL & MEDIUM FAB RESOURCE 1
Assemble D3121-141 as per Dwg D3121. 07/04/30 12

9.0	QC5	INSPECT WORK TO CURRENT STEP

Comment: INSPECT WORK TO CURRENT STEP 07/05/02 (X 12)

10.0	PACKAGING 1	PACKAGING RESOURCE #1

Comment: PACKAGING RESOURCE #1
Identify and Stock
Location: S1233 07/05/02 (12)

11.0	QC21	FINAL INSPECTION/W/O RELEASE

(12)

Comment: FINAL INSPECTION/W/O RELEASE 07/05/03

Job Completion

07/05-03

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

QA: N/C Closed: _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	31654
Description: Bracket	Part Number:	D3121-111
Inspection Dwg: D3121 Rev: D		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

[X] First Article [ ] Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.392	+0.002/-0.000	Ø0.3935	✓			
0.75	+/-0.030	0.751	✓			
0.375	+/-0.010	0.375	✓			
2.14	+/-0.030	2.160	✓			
0.950	+/-0.010	0.950	✓			
0.600	+/-0.010	0.600	✓			
1.96	+/-0.030	1.965	✓			
0.280	+/-0.010	0.280	✓			
3.330	+/-0.010	3.321	✓			
3.630	+/-0.010	3.630	✓			
R0.25	+/-0.030	R0.250	✓			
R0.375	+/-0.010	R0.375	✓			
Ø0.201	+0.005/-0.000	Ø0.202	✓			
0.100	+/-0.010	0.096	✓			
6.18	+/-0.030	6.175	✓			
5.89	+/-0.030	5.888	✓			
0.080	+/-0.010	0.080	✓			
0.300	+/-0.010	0.298	✓			
30°	+/-0.1°	30°	✓			
R0.25	+/-0.030	R0.250	✓			
0.130	+/-0.010	0.130	✓			
0.381	+/-0.010	0.378	✓			
0.201	+/-0.010	0.201	✓			Eng. dwg.
0.400	+/-0.010	0.399	✓			
0.580	+/-0.010	0.577	✓			
100°	+/-0.1°	100°	✓			
0.032	+/-0.010	0.030	✓			

Measured by:	JMK	Audited by:	JL	Prototype Approval:	N/A
Date:	07/04/25	Date:	07/04/25	Date:	N/A

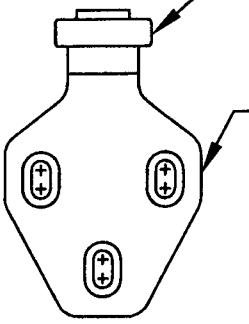
Rev	Date	Change	Revised by	Approved
A	04.01.12	New Issue P/O D3121-141	KJ/RF	
B	04.05.05	Dimensions changed/re-arranged per Dwg revision	KJ/JLM	
C	06.06.14	Dwg Rev. updated	KJ/JLM	

DART

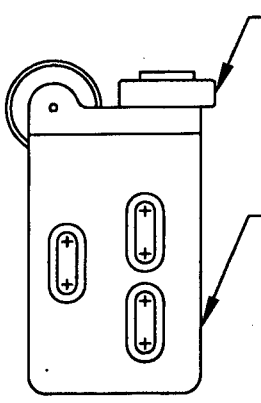
DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D3121 REV. D SHEET 1 OF 10
DATE 06.05.17		TITLE BRACKET ASSEMBLY SCALE 1:2

A	02.04.15	NEW ISSUE
B	03.01.16	ADD RIDGES; ADD MAT'L PROP; FIX P/N ADD −141/−143/−144/−145/−146
C	04.02.17	ADD CLEARANCE; USE −241 BEARING
D	06.05.17	D3121−25 CAP WAS 1.024, NOW 1.000

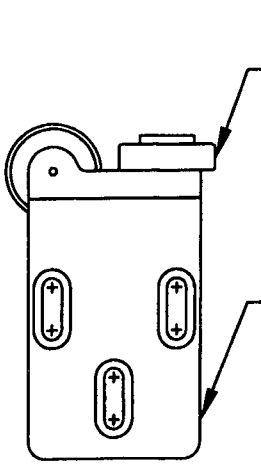
RELEASED
06.06.02



D3121−041 BRACKET ASSEMBLY
(REPLACES PREMIER P/N B30−23000−33)



D3121−043 (SHOWN) / D3121−044 (OPPOSITE) BRACKET ASSEMBLY
(REPLACES PREMIER P/N B30−23000−37/−38)



D3121−045 (SHOWN) / D3121−046 (OPPOSITE) BRACKET ASSEMBLY
(REPLACES PREMIER P/N B30−23000−35/−36)

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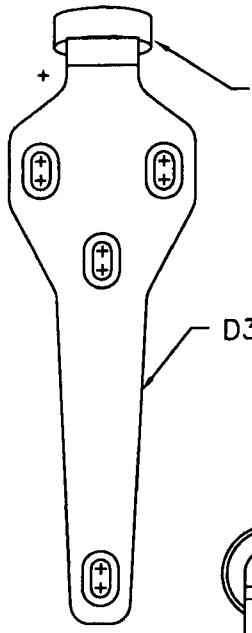
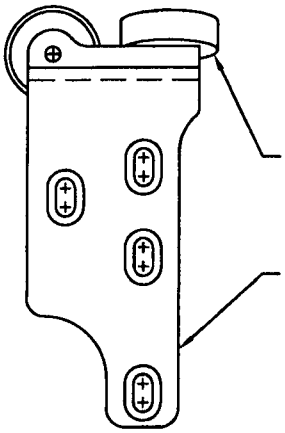
DATE 06.05.17		TITLE BRACKET ASSEMBLY	SCALE 1:2

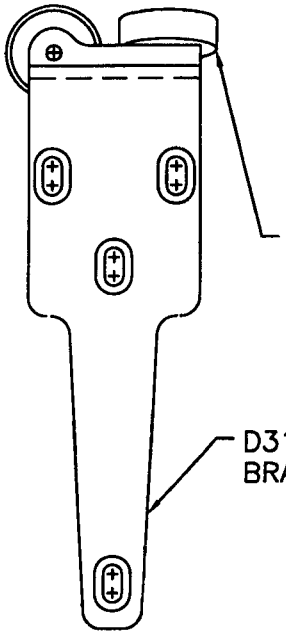


D3121-141 BRACKET ASSEMBLY
(REPLACES PREMIER P/N B30-23001-01)

RELEASED
06.06.02



D3121-143 (SHOWN) / D3121-144 (OPPOSITE) BRACKET ASSEMBLY
(REPLACES PREMIER P/N B30-23000-03/-04)



D3121-145 (SHOWN) / D3121-146 (OPPOSITE) BRACKET ASSEMBLY
(REPLACES PREMIER P/N B30-23000-05/-06)

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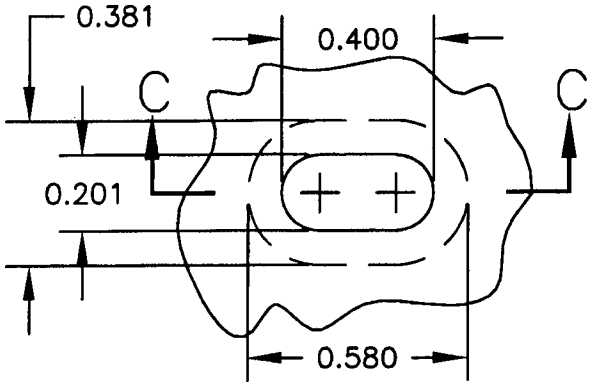
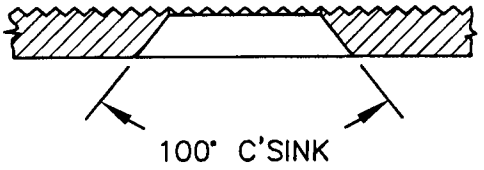
DATE 06.05.17		TITLE BRACKET ASSEMBLY	SCALE 1:1

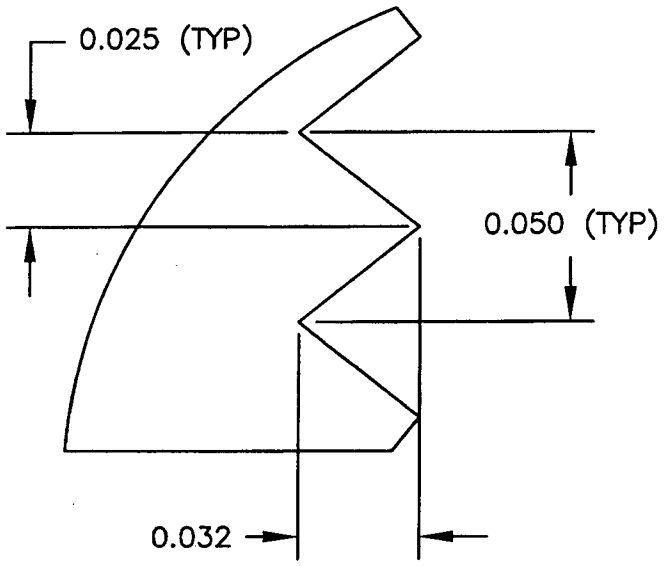
DETAIL A:
SLOT DETAIL
SCALE 2:1
VIEW ROTATED





SECTION C–C

DETAIL B:
RIDGE DETAIL
PARTIAL SECTION
SCALE 1:20



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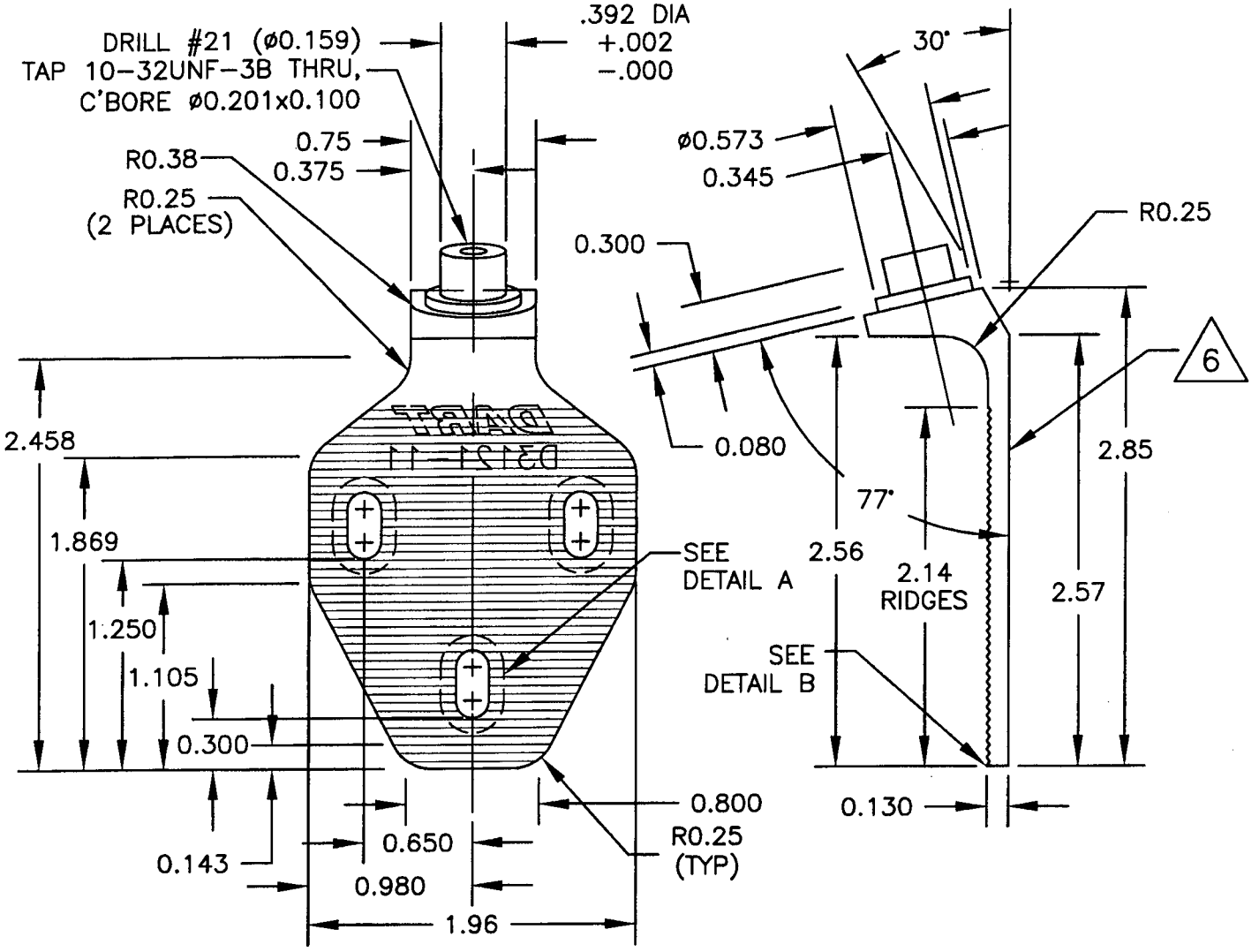
DATE 06.05.17		TITLE BRACKET ASSEMBLY	SCALE 1:1



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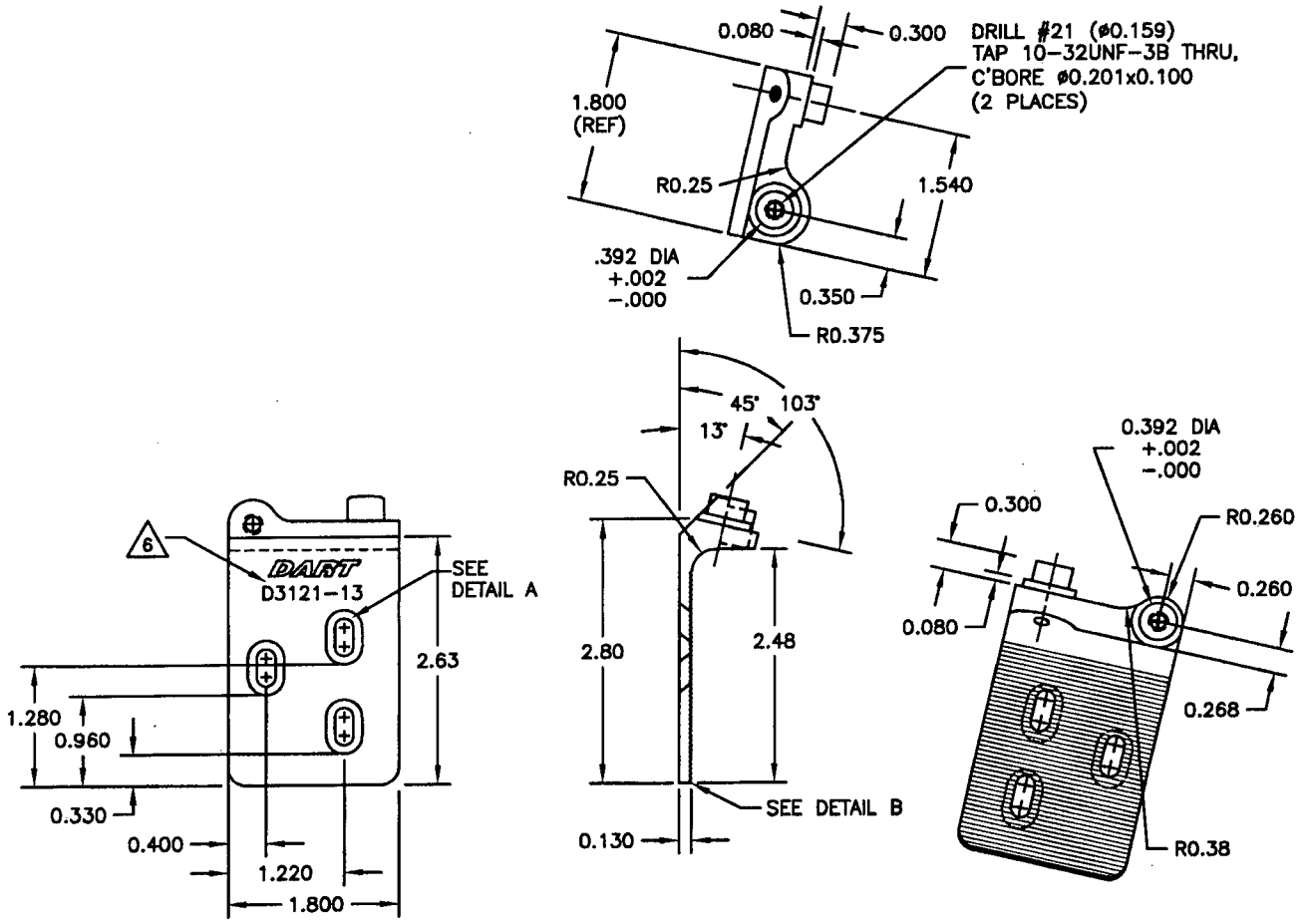
D3121-11 BRACKET

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
   MIN ULTIMATE TENSILE = 150 ksi
   MIN YIELD TENSILE = 100 ksi
2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
3) ALL DIMENSIONS ARE IN INCHES
4) BREAK ALL SHARP EDGES 0.005 TO 0.015
5) ENGRAVE DART P/N & LOGO AS SHOWN
6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

RELEASED
06.06.02

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. D3121	REV. D SHEET 5 OF 10
DATE 06.05.17		TITLE BRACKET ASSEMBLY	SCALE 1:2



D3121-13 BRACKET (SHOWN)
D3121-14 BRACKET (OPPOSITE)

1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
   MIN ULTIMATE TENSILE STRENGTH = 150 ksi
   MIN YIELD TENSILE STRENGTH = 100 ksi
2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
3) ALL DIMENSIONS ARE IN INCHES
4) BREAK ALL SHARP EDGES 0.005 TO 0.015
5) ENGRAVE DART P/N & LOGO AS SHOWN
6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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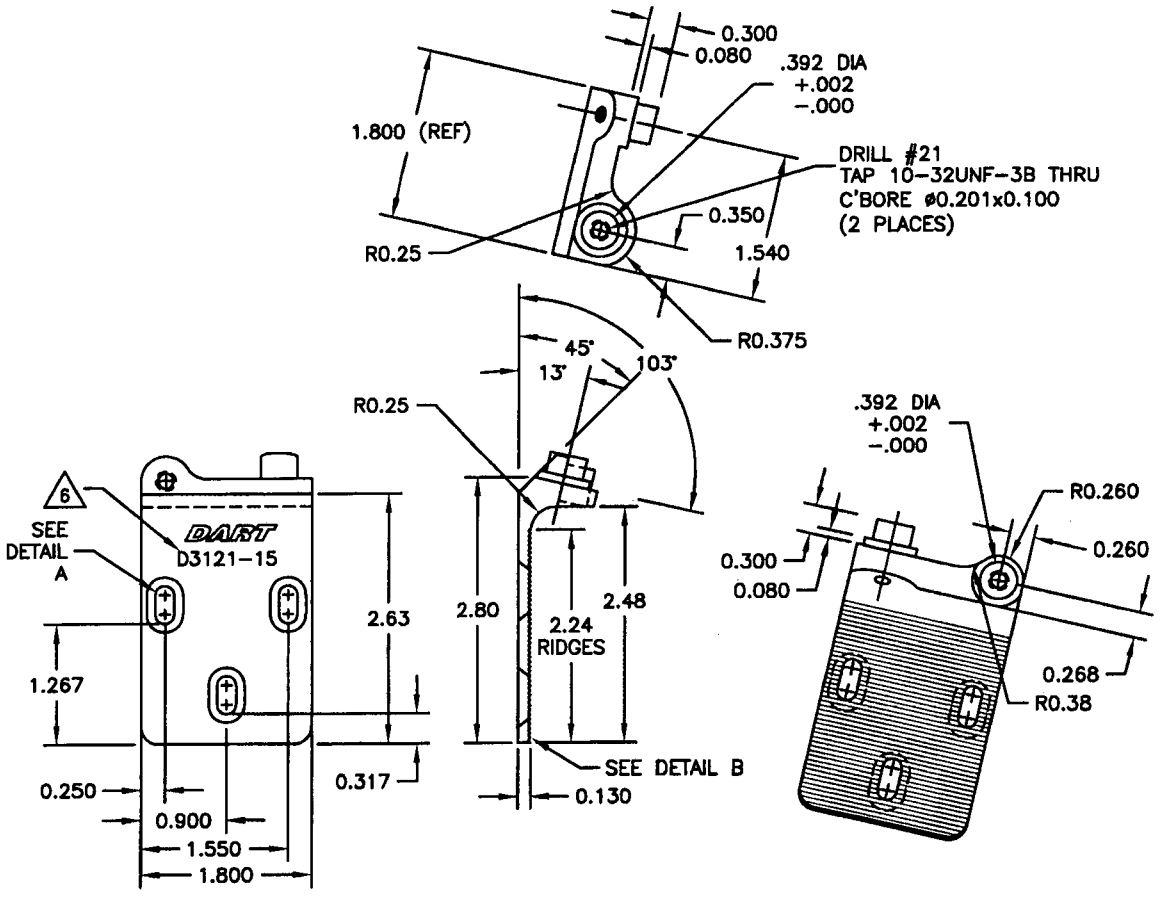
CHECKED	APPROVED	DRAWING NO. D3121	REV. D SHEET 6 OF 10
DATE 06.05.17		TITLE BRACKET ASSEMBLY	SCALE 1:2



D3121−15 BRACKET (SHOWN)
D3121−16 BRACKET (OPPOSITE)

1) MATERIAL: 17−4 SS PER AMS 5604/5643 (REF DART SPEC. M17−4−B)
   MIN ULTIMATE TENSILE = 150 ksi
   MIN YIELD TENSILE = 100 ksi
2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
3) ALL DIMENSIONS ARE IN INCHES
4) BREAK ALL SHARP EDGES 0.005 TO 0.015
5) ENGRAVE DART P/N AND LOGO AS SHOWN
6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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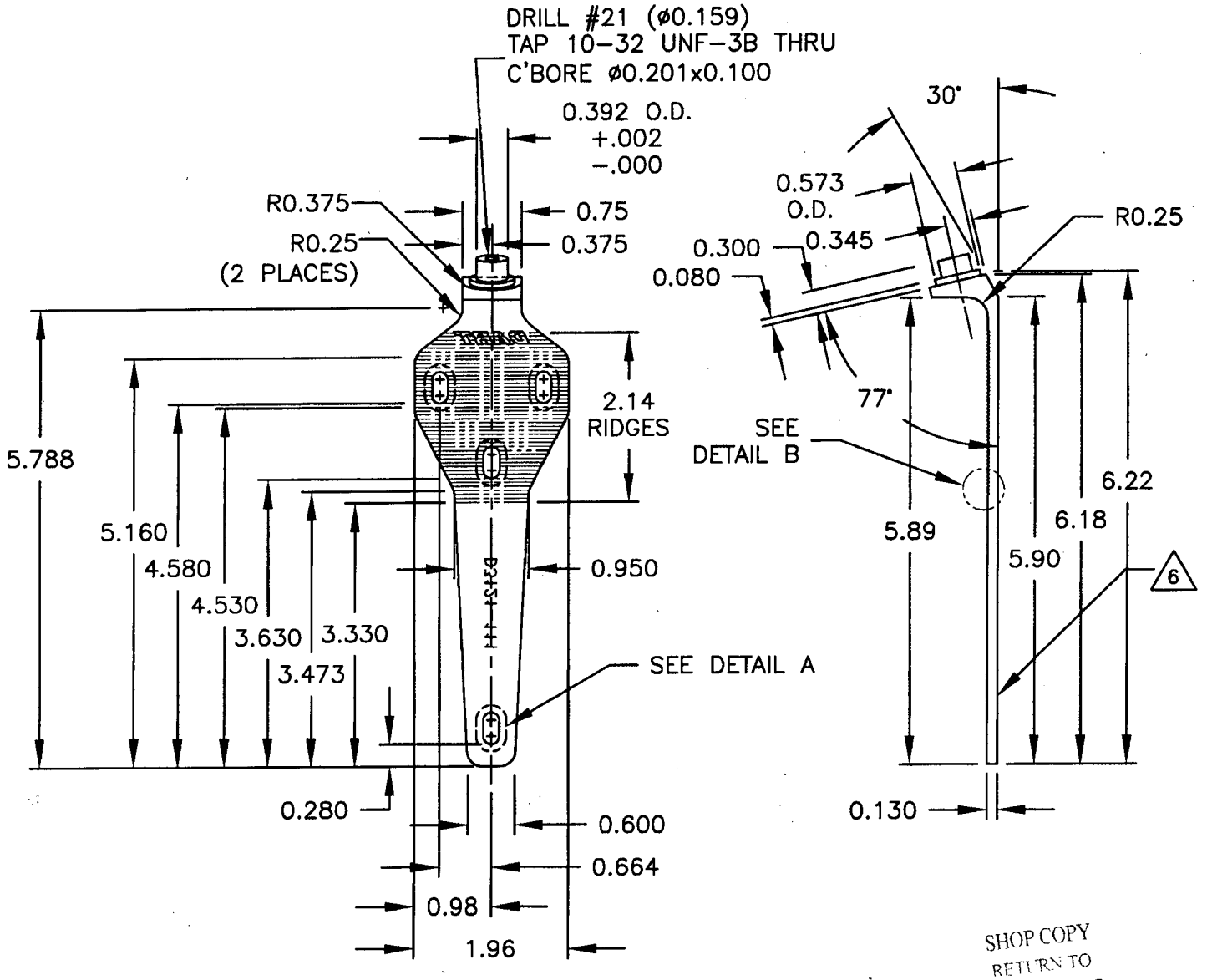
CHECKED	APPROVED	DRAWING NO. D3121	REV. D SHEET 7 OF 10
DATE 06.05.17		TITLE BRACKET ASSEMBLY	SCALE 1:2



D3121-111 BRACKET

1) REPLACES PREMIER P/N B32-23001-11
2) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
   MIN ULTIMATE TENSILE = 150 ksi
   MIN YIELD TENSILE = 100 ksi
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHEWISE NOTED
4) ALL DIMENSIONS ARE IN INCHES
5) BREAK ALL SHARP EDGES 0.005 TO 0.015
6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN
7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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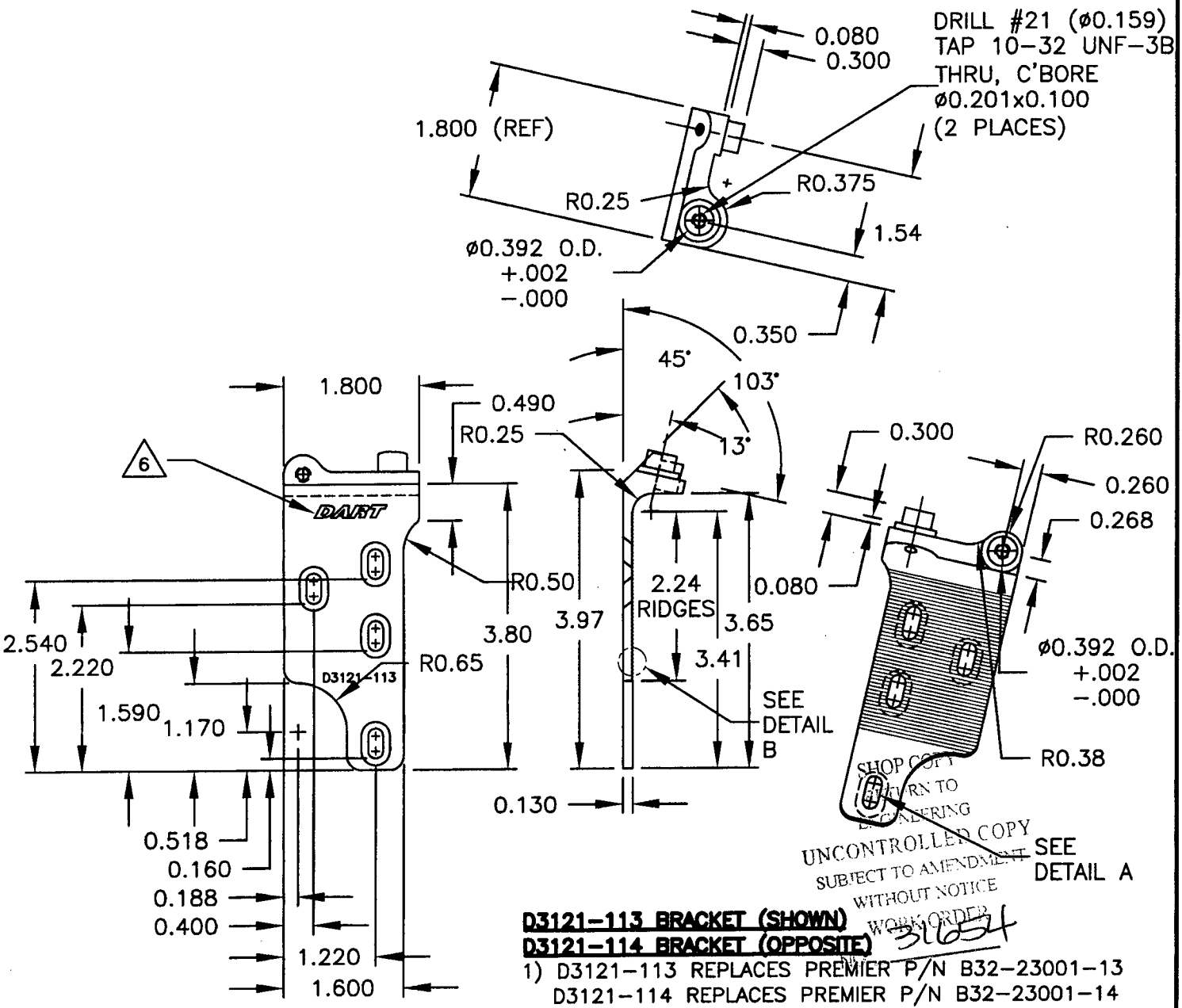
WORK ORDER
NO. 31654

RELEASED
06.06.02

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. D3121	REV. D SHEET 8 OF 10
DATE 06.05.17		TITLE BRACKET ASSEMBLY	SCALE 1:2



WORK ORDER 31654

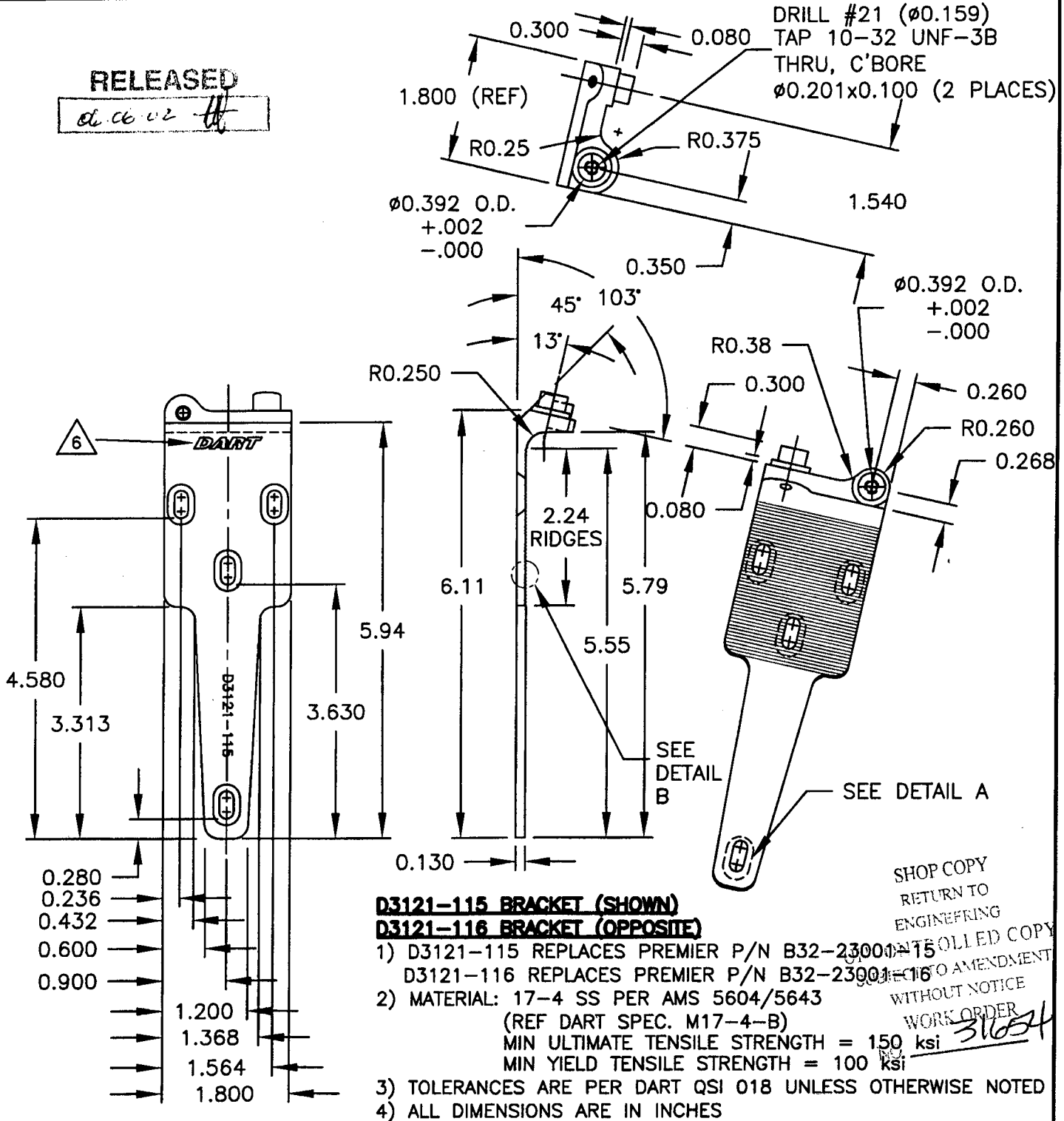
D3121-113 BRACKET (SHOWN)
D3121-114 BRACKET (OPPOSITE)

1) D3121-113 REPLACES PREMIER P/N B32-23001-13
   D3121-114 REPLACES PREMIER P/N B32-23001-14
2) MATERIAL: 17-4 SS PER AMS 5604/5643
   (REF DART SPEC. M17-4-B)
   MIN ULTIMATE TENSILE STRENGTH = 150 ksi
   MIN YIELD TENSILE STRENGTH = 100 ksi
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
4) ALL DIMENSIONS ARE IN INCHES
5) BREAK ALL SHARP EDGES 0.005 TO 0.015
6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN
7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

RELEASED
06.06.02

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
	CB		
CHECKED	APPROVED	DRAWING NO.	REV. C
		D3121	SHEET 9 OF 10
DATE		TITLE	SCALE
04.02.18		BRACKET ASSEMBLY	1:2

RELEASED
04.06.02



D3121-115 BRACKET (SHOWN)
D3121-116 BRACKET (OPPOSITE)

1) D3121-115 REPLACES PREMIER P/N B32-23001-15
   D3121-116 REPLACES PREMIER P/N B32-23001-16
2) MATERIAL: 17-4 SS PER AMS 5604/5643
   (REF DART SPEC. M17-4-B)
   MIN ULTIMATE TENSILE STRENGTH = 150 ksi
   MIN YIELD TENSILE STRENGTH = 100 ksi
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
4) ALL DIMENSIONS ARE IN INCHES
5) BREAK ALL SHARP EDGES 0.005 TO 0.015
6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN
7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

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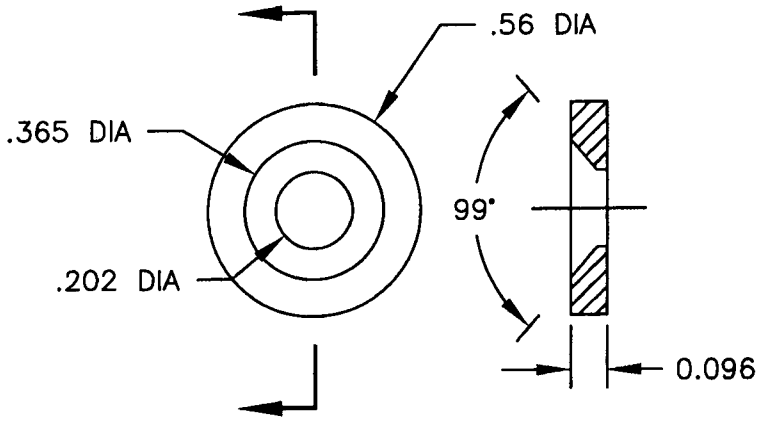
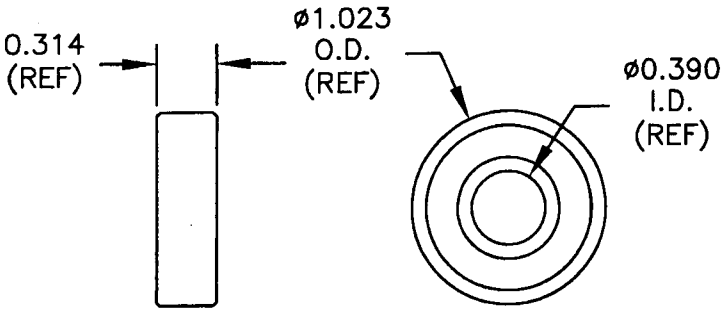
DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. D3121	REV. D SHEET 10 OF 10
DATE 06.05.17		TITLE BRACKET ASSEMBLY	SCALE 1:1



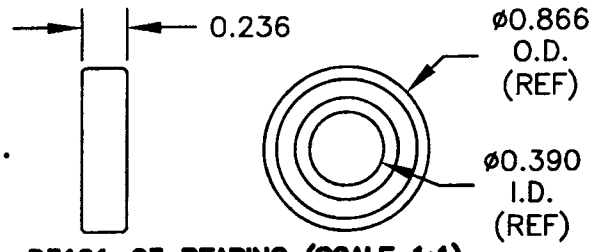
D3121-17 WASHER (SCALE 2:1)

1) REPLACES PREMIER P/N B32-23001-17
2) MATERIAL: AISI 303 SS ROUND BAR, ANNEALED (REF DART SPEC. M303R)
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
4) ALL DIMENSIONS ARE IN INCHES
5) BREAK ALL SHARP EDGES 0.005 TO 0.015



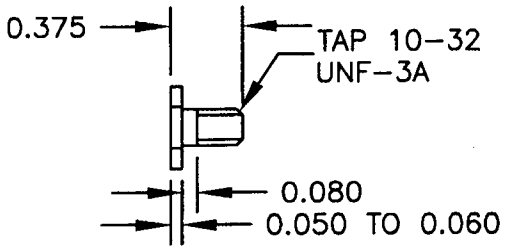
D3121-19 BEARING (SCALE 1:1)

1) POSSIBLE SUPPLIER: KING BEARING P/N 6000-2ZJ/EM
FAFNIR P/N 9100KDD
2) ALL DIMENSIONS ARE IN INCHES



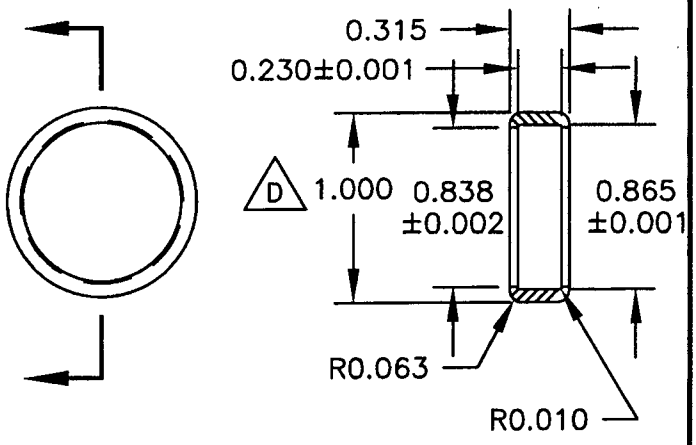
D3121-23 BEARING (SCALE 1:1)

1) POSSIBLE SUPPLIER: SKF P/N 61900-2Z
OR KML P/N 6900-ZZ
2) ALL DIMENSIONS ARE IN INCHES



D3121-21 BOLT (SCALE 1:1)

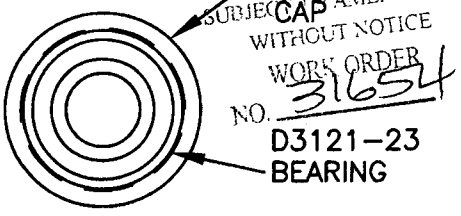
1) MATERIAL: AISI 303 SS HEX, ANNEALED (REF DART SPEC. M303H0.500)
2) FINISH: NONE
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
4) ALL DIMENSIONS ARE IN INCHES
5) BREAK ALL SHARP EDGES 0.005 TO 0.015



D3121-25 CAP (SCALE 1:1)

1) MATERIAL: DELRIN ROD, ø1.25
(REF DART SPEC. M-DELRIN-R1.250)
2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
3) ALL DIMENSIONS ARE IN INCHES

RELEASED
06 06.02



D3121-241 BEARING ASSEBLY (SCALE 1:1)

Chris Provencal

From: David Shepherd [dshepherd@dartaero.com]
Sent: April 26, 2007 10:38 AM
To: 'Chris Provencal'
Cc: 'Jason Murdoch'
Subject: RE: Emailing: ncrD3121.jpg

Chris,

I agree. I also don't think this is a high stress area.
Part is in bending at slots.
Acceptable deviation.

David

-----Original Message-----
From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Wednesday, April 25, 2007 8:44 AM
To: David Shepherd (David Shepherd)
Cc: 'Jason Murdoch'
Subject: Emailing: ncrD3121.jpg

David, qty(1) D3121-111 bracket. The R0.25 radius is R0.188. The forgot to change the tool when doing the first one. I don't see a problem myself, the radius is smaller so it shouldn't cause a fit problem.

-Chris